

Performance of different paddy varieties in Narainpur area of Chhattisgarh

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Abstract: A study was conducted during the rainy (kharif) season of 2013-14 at Ramkrishna mission ashram agriculture Training and demonstration center, Brehabeda, Narainpur district of Chhattisgarh to study the performance of five different paddy varieties viz., Danteshwari, Karma masuri, IR-64, Poornima and Chandrahasini. All varieties performed well under Brehabeda conditions. Variety Danteshwari shows higher growth and yield attributes like maximum plant height (89.1 cm), no. of tillers per plant (22.3), panicle length (28.9 cm), no. of seeds/panicle/plant (184.7) and highest grain yield (61.16 q/ha) followed by variety Karma masuri.

Key Words: Rice, Narainpur, Danteshwari, Karma masuri, yield.

INTRODUCTION

Rice is an important crop of the millions of poor and small farmers not only for income but also for household food security. However, the rice sector has witnessed rapid dynamism in production processes. After climbing a height of four-fold increase in production during past four decades, the production curves have started showing downward trend and productivity decelerating since the latter half of the 1990s. Rice provides 21% of global human per capita energy and 15% of per capital protein. In the world, rice is cultivated on about 163.1 Mha of area with total production of 722.5 MT and productivity of 4.4 t/ha (Anonymous, 2012). The India's rice production has reached to a record high of 104.32 MT from an area of 43.17 Mha with productivity 2.42 t/ha in 2011-2012 (Anonymous, 2013). Just as rice can be grown in many different environments, it has many characteristics, making one variety more popular in one region of the world than another.

The present study was carried out to study the performance of different paddy varieties in Narainpur area of Chhattisgarh. Variety Danteshwari (IET 15450, R302-111) a cross between Samridhi x IR 8608-298 is an early variety and has a good physiological, drought and brown spot tolerance as well as resistance to gall midge. Karma Mahsuri (R 1130-80-1- 52-1, IET 19991) variety is medium duration gall midge, lodging and shattering resistant, tolerant to BPH, WBPH and Brown spot and moderately resistant to leaf blast. An early variety Poornima (R 281-31-1, IET 12284) has a good escape as well as tolerance capacity to moisture stress. Variety Chandrahasini (R 979-1528-2-1, IET 16800) resistant to GM 1, moderately resistance to BPH, Leaf folder, WBPH and Neck blast, tolerant to Leaf Blast, Brown spot and Sheath rot as well as moderately tolerant to drought. IR64 was released by the International Rice Research Institute and has been widely accepted as a high quality rice variety in many countries.

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MATERIALS AND METHODS

A Large scale study was conducted to evaluate six different paddy varieties at Ramkrishna mission ashram agriculture Training and demonstration centre, Brehabeda, Narainpur district of Chhattisgarh during *khari* season of 2013-2014. Five different paddy varieties *viz.* Danteshwari, Karma masuri, IR-64, Poornima and Chandrahasini were evaluated in well drained medium to loamy soil suitable for rice cultivation with Randomized Block Design (RBD) in three replications. Seedlings were raised in the nursery using seed rate of 20-25 kg seeds/acre. Raised beds of 1m width, 20m length and 15cm height with 30cm water channel were prepared for seedling rising. All recommended package practices were adopted for raising the seedlings.

Before transplanting, puddling with tractor was done. The basal doses of fertilizers i.e. 25kg urea, 50kg DAP, 40kg potash (MOP) and 8kg zinc sulphate per acre were applied before transplanting and top dressing of 30kg urea at 30 and 60 days after transplanting was carried out. After preparation of land 22 days old seedlings of each variety was transplanted at 25cm X 25cm distance manually in the field. For weed control, butachlore @ 600 ml per acre was used. All other crop management practices as per recommendations were followed during experimentation. An observation on plant height was recorded at 45 DAT and at harvest while number of tillers/plant, no. of leaves/plant, panicle length, number of seeds/panicle and grain yield in each variety were recorded just before harvesting.

Data were compiled and analyzed using appropriate statistical methods.

RESULT AND DISCUSSION

All five varieties evaluated performed well under Narainpur condition. Among five different rice varieties evaluated for their quantitative performance in Narainpur areas of Chhattisgarh state. From five different varieties, variety Danteshwari out yielded significantly over other four varieties *viz.* Karma masuri, IR-64, Poornima and Chandrahasini. The highest yield (61.16 q/ha) of Danteshwari variety can be directly attributed to more plant growth such as maximum plant height (68.7 & 89.1 cm) at 45 DAT and at harvest respectively, highest number of tillers/plant (22.3) and no. of leaves/plant (4.3) as recorded at harvest which is followed by Karma masuri. Similar finding were also reported by Ramalakshmi *et al.* (2012); Alim (2012) and Kumar *et al.* (2014).

The maximum panicle length (28.9 cm) and number of seeds/panicle/plant (184.7) were also found highest over other varieties in Danteshwari variety which is statically not differ with variety Karma masuri. The results are also in conformity with findings of Kumar and Singh (2006); Hossain and Singh (2000); Mohanty *et al.* (2013) and Kumar *et al.* (2014).

Next to Danteshawari, variety Karma Masuri recorded 58.65q/ha grain yield than other varieties under test (Table 1). The lowest grain yield (33.72 q/ha) was recorded in case of IR-64 variety.

Table 1
Relative performance of five different paddy varieties.

Varieties	Plant Height (cm)		No. of tillers/Plant	No. of leaf/plant	Panicle length (cm)	No. of seeds/panicle/plant	Grain Yield, q/ha
	45 DAT	At harvest					
1. Danteshwari	68.7	89.1	22.3	4.3	28.9	184.7	61.16
2. Karma Masuri	62.9	87.1	21.7	3.7	28.8	184.0	58.65
3. IR 64	54.7	70.7	17.5	4.0	27.3	169.5	33.72
4. Poornima	51.0	81.0	17.1	3.0	24.9	138.9	45.36
5. Chandrahasini	61.6	65.8	15.5	4.0	25.5	151.9	53.26
C.D. at 0.05 %	3.0	2.7	1.9	0.11	1.9	16.6	0.88

CONCLUSION

Thus it can be concluded that rice variety Danteshwari out yielded other four rice varieties for plant growth characters and grain yield viewpoints. The next best rice variety is Karma masuri. Hence these two rice varieties, Danteshwari and Karma masuri can be recommended for cultivation to the rice growers in the area.

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